

# **NASA IV&V Customer Survey Results 2005**



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## **Background**

NASA IV&V over the past three years has been enhancing its commitment to focus on the customers served through IV&V engagements. As a cornerstone strategic goal, attention to customer satisfaction and, just as important, understanding customer requirements has been paramount for NASA IV&V. Working with the Center for Entrepreneurial Studies and Development, Inc. (CESD), NASA IV&V leadership has continued to refine the internal processes for collecting feedback directly from projects.

In 2005, customer surveys were upgraded in three areas: project start-up, project progress status and final project completion. The surveys were designed to garner as much open-ended comments from project representatives as possible. Quantitative, rating-based questions were included that targeted the level of satisfaction with IV&V services. The nature of these questions also provided an opportunity to learn the perceived “value-added” of the IV&V process and work from the customers’ perspective.

To increase the probability of open response and to ensure objective reporting of outcomes, CESD was asked to administer the survey process and provide this summary report on findings and outcomes.

The paper versions of the surveys were put online to allow for easier access for customers to fill them out. Appendix A shows the paper versions of the two surveys. The online versions of the surveys varied only slightly from the original paper versions in terms of the look and layout of the survey. This was necessary because of the software utilized to develop the online surveys.

## **Survey Process and Activity**

Upon agreement with staff at NASA IV&V that the surveys were ready to be sent, CESD obtained a list of projects to include in the 2005 survey process. The decision was made to send a survey to those projects that had concluded in the past year as well as all current projects considered in progress, regardless of how long the project had been in place. IV&V project managers were asked to identify the best person(s) to respond to the survey. The intent was to identify the overall project manager at the project and, where different, the key liaison working most directly with the NASA IV&V project manager. Appendix B contains the list of projects that were sent surveys.

Appropriate cover letters were designed and used by CESD. Table 1 provides a tracking of the survey mailing and follow-up process used this year. The table lists each activity completed to encourage the completion of a survey. The third column tracks the number of surveys submitted since the last activity. For instance, five (5) surveys were on record at CESD when the first reminder (via e-mail) was sent on July 12<sup>th</sup>.

**Table 1**  
**NASA Customer Survey Process Phases & Activity Tracker Summary**

Phase/Activity	Date Completed	Number of Submitted Surveys Since Last Activity	Notes
Initial mailing	6/27		CESD completed
Reminder e-mails sent to everyone who had not yet responded	7/12	5	CESD completed
2nd reminder e-mail sent to those who had not yet responded	7/22	7	CESD completed
Center contact representatives notified by NASA IV&V regarding survey process and asked to encourage completion by projects sent surveys	end of July	n/a	This was handled through NASA IV&V
Letters w/ surveys sent to missed project	8/2	n/a	CESD completed
3rd reminder e-mail sent to those who had not yet responded	8/15	14	CESD completed
NASA IV&V sends notice to all Centers thanking for returns and reminding of those who have not sent in surveys.	8/15		This was handled through NASA IV&V
	8/18	2	Both missed project surveys received
	9/2	1	Survey received in mail
	9/7	2	2 additional surveys completed online
		31 TOTAL	

As noted in the Table 1, NASA IV&V did help in soliciting survey completion at the project level through direct contacts at various centers.

### **Survey Return Rates**

Table 2 provides an analysis of the survey return rates by type of survey. Each project could have had up to two different survey returns. In cases where only one person was responsible for both project management and liaison to NASA IV&V, only one survey would be expected. As Table 2 shows, a high percentage return rate was experienced this year. Most significant was the higher return rates reflecting at least one survey from a project.

**Table 2**  
**NASA IV&V Customer Survey Completion Analysis (2005)**

<b>Focus</b>	<b>Total</b>	<b>Progress Surveys</b>	<b>Final Surveys</b>
Total Projects Sent Surveys	23	17	6
Total Projects with a least one survey returned	22	17	5
Percent of Projects with at least one survey returned	<b>96%</b>	<b>100%</b>	<b>83%</b>
Total Expected Surveys	41	30	11
Total Surveys (adjusted for combined response for project)	40	29	11
Surveys Submitted	31	23	8
Percentage of Survey Responses	<b>78%</b>	<b>79%</b>	<b>73%</b>

### **Limitations**

The following possible limitations to the data and its analysis should be kept in mind when considering the survey findings and taking action.

1. Some individuals may have answered some or all questions based on the IV&V support contractor(s), rather than the IV&V project manager or Facility.
2. Some individuals did not answer all of the questions on the survey. Many of the open-ended questions which are designed to “listen” to specific thoughts of the respondent were not completed.
3. In some areas, the specific information regarding the project manager was not rated. In some of the other rating questions, not all respondents rated every question. Those using this report to complete analysis and make possible changes should note the number of responses (indicated on the graphs) for any given question.
4. Once the surveys were sent and then returned, there were no discussions or follow-up with individuals who completed the survey. Thus, there was not an opportunity to ask for clarification on a comment, for more details regarding what was expressed, etc. NASA IV&V is encouraged to consider one-on-one interviews with some of the respondents for more specifics on issues delineated in an individual survey response or from overall responses.
5. There is no way to know the extent to which a respondent is or has been involved in the NASA IV&V work and/or working with a particular project manager from NASA IV&V. Therefore, responses may be limited to impressions based on less exposure to the process or an individual’s work.

6. NASA IV&V has been undergoing a change in how IV&V is engaged, supported and funded. Some of the projects may be responding based on the earlier approaches, while others have been under the new way of doing business.
7. In some cases, project managers may have been changed at some point in the engagement. This may influence specific responses in some cases.
8. The survey was not intended to be scientific in nature, rather it was seeking thoughts from those people most directly working with NASA IV&V; therefore, drawing concrete conclusions regarding specific aspects of operations based on one or two statements found in the outcomes should be avoided.
9. Without accurately knowing, there may have been a tendency for those with positive opinions or good experiences to respond to the survey, rather than those who had bad experiences. However, the number of responses indicates that nearly everyone at least provided comments. Some may have refrained from some comments based on confidence that the responses would remain truly confidential.

### **Findings**

CESD has performed analysis of the data by summarizing quantitative data and extracting key statements from the surveys within specific areas such as what are best aspects of IV&V work, improvement ideas and status of IV&V recommendations. This section should serve as a reference area for detailed work by those charged within the NASA IV&V organization to address the outcomes and make appropriate changes or draft communication to change perceptions that may not be accurate.

### **Themes**

Overall, the results are clearly favorable toward NASA IV&V and its work. The high response rate, coupled with the strong positive responses in most cases, bodes well for the Facility and its efforts. Although, as will be pointed out later, there are ample opportunities for improvement, NASA IV&V can take pride in the overall ratings given and the good remarks made by the majority of respondents.

Some high-level themes found by CESD include:

- Work Results – The feedback indicated that most respondents were pleased with the results of NASA IV&V's work. Many commented on the work as being value-added and technically sound. A number of references to the quality of the work were made.
- Education – There was mention of educational needs not only for the customer, but for NASA IV&V personnel as well. For the customer, it was more along the lines of education on the tools (and sometimes software terminology) used by IV&V. For NASA IV&V personnel, it was for training on conflict management in order to deal with initial phases of project that seem confrontational.

- Overall Services – Overall, the feedback indicated that the support and effort has been value-added. The professionalism, flexibility and dedication of NASA IV&V services were key aspects for several respondents.
- Turnover – This was mentioned a few times as having caused some problems, such as duplication of issues raised, getting behind schedule, and inefficiencies due to lack of preparations.
- Co-location – Several respondents mentioned that the lack of co-location was difficult to deal with. They would like to have more on-site support and presence.
- Findings – While most projects reported being happy with IV&V findings, some mentioned that false positives were relatively high or that some findings and recommendations have been trivial or aren't 'new' findings.
- Project Managers – Many respondents commented on their pleasure with their project managers. Comments such as 'easy to work with', 'excellent communication', 'professional', 'skilled', etc. were among the positive things mentioned. However, a few did mention that there was room for improvement in areas such as responsiveness, follow-through, completeness, and communication. It was also mentioned that some PMs rely too much on their team or aren't empowered to adequately perform their job.
- Focus – A few respondents had comments about the focus of the work being done. Comments such as 'process issues should be provided to the organization and not tracked as issues to resolve,' 'occasionally we do not agree on areas of emphasis,' or 'do assessments according to our process not others' processes or the standard' indicate the need for better focus.

## **Ratings**

The following set of graphs provides summary analysis of the ratings given in the various sections of the survey. In some cases, both the progress and final survey rating sections were combined. As can be seen, some of the statements asked to be rated were the same in both surveys with the only difference being the "tense" of the verb between being in progress compared to being completed.

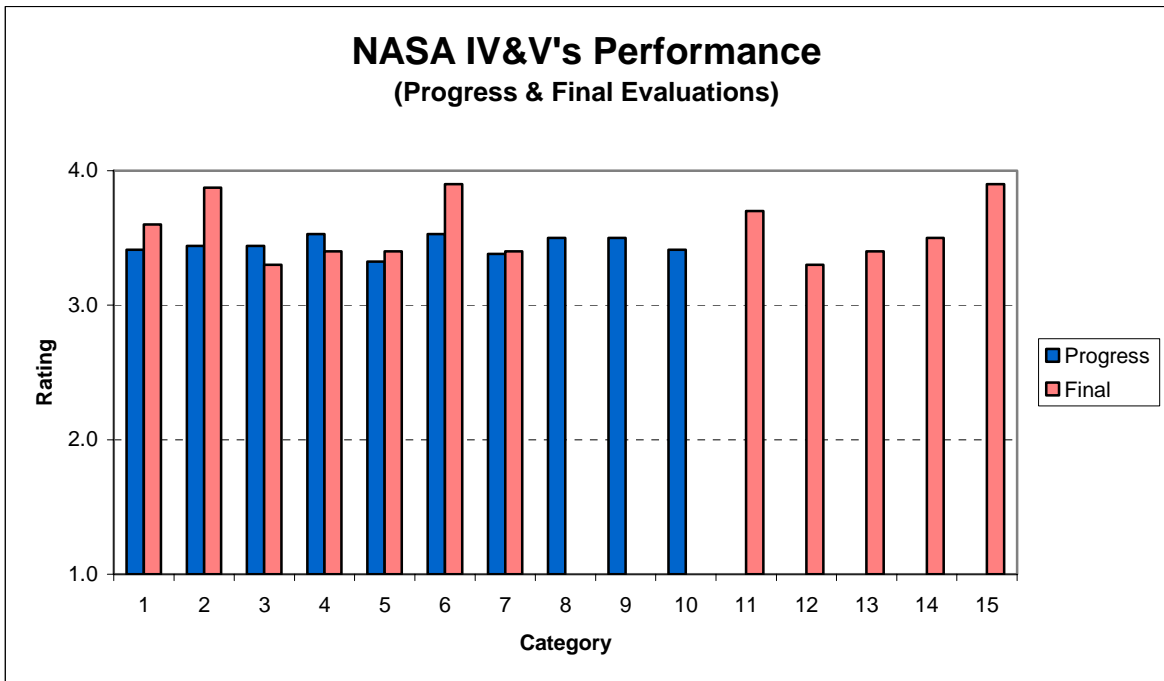
The rating scale that was chosen to be used did not have middle or "neutral" options. Respondents were asked to rate based on a descriptor rather than a number. These were Never, Seldom, Often and Always for most of the rating questions. The other descriptors used were Strongly Disagree, Disagree, Agree and Strongly Agree. In completing the analysis, a numeric value of 1 to 4 was assigned to the descriptors. Thus, the higher the number, the more positive the rating. For example, if the average was 3.5 on the one rating scale, it would suggest that on average the respondents rated the statement as more than 'Often', but not 'Always'.

At the request of NASA IV&V, when two different individuals at one project submitted separate surveys, the results for that project were averaged and that average put into the overall analysis of ratings shown in the graphs. For the most part, detailed study shows that this had only a marginal effect, if any, on the survey results. Each of the graphs shows the total number of responses for that rating statement (N value) for each category (question) analyzed. This was done because the N value varied between the progress and final surveys as well as among questions as some respondents did not answer every question.



When reviewing the graphical results, NASA IV&V should determine what is an acceptable average response value. It may be difficult to reach the highest rating across all statements. Yet, there may be some areas that even averaging high, is still not adequate based on the goal of having customer service “second to none”.

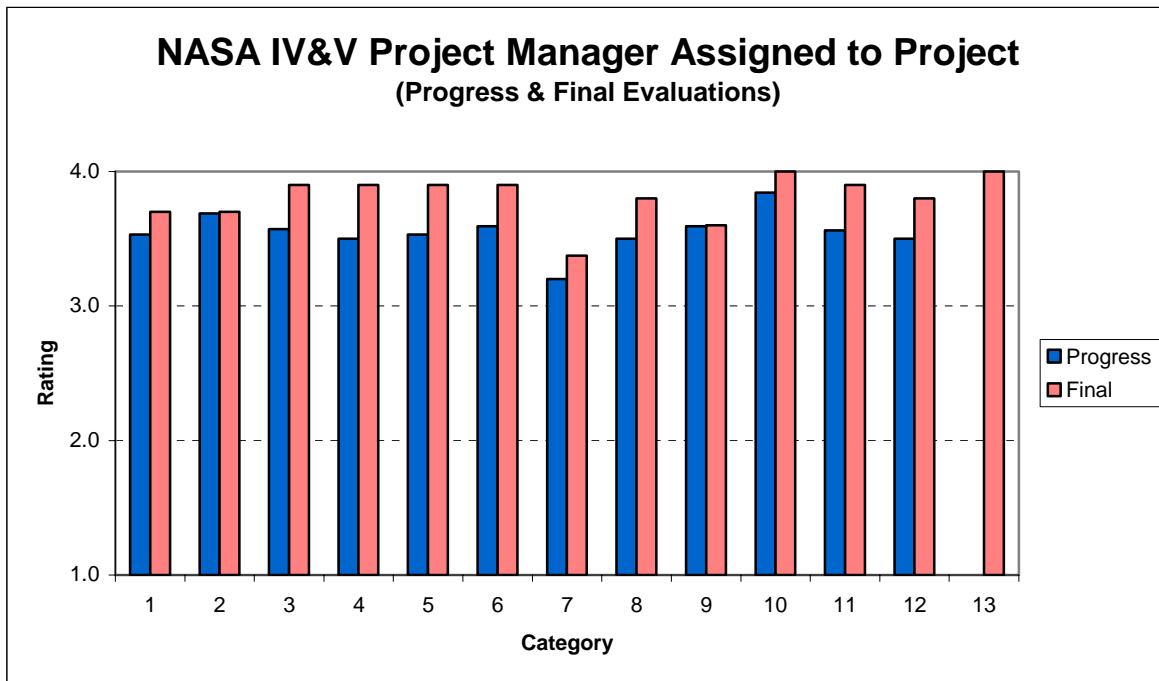
**Graph 1**  
**NASA IV&V's Performance – Project Results**



Category	N Value	
	Progress	Final
1 = NASA IV&V comprehended project requirements and responded as needed	17	5
2 = NASA IV&V adhered to signed agreements	17	4
3 = NASA IV&V always gave high priority to project	17	5
4 = NASA IV&V always well prepared for project	17	5
5 = You have confidence in the advice/recommendations given to you by NASA IV&V	17	5
6 = Your staff was comfortable with NASA IV&V staff	17	5
7 = You are completely satisfied with technical performance	17	5
8 = You are being kept adequately informed of IV&V progress on project	17	
9 = You understand activities NASA IV&V is performing on project	17	
10 = NASA IV&V completes tasks timely	17	
11 = NASA IV&V was highly ethical and open		5
12 = NASA IV&V was very efficient		5
13 = NASA IV&V always met project deliverables/milestones as planned		5
14 = IV&V services/project added value to your overall program/mission		5
15 = You had a contact at NASA IV&V you could always turn to		5

**Rating**  
1 = Strongly Disagree    2 = Disagree    3 = Agree    4 = Strongly Agree

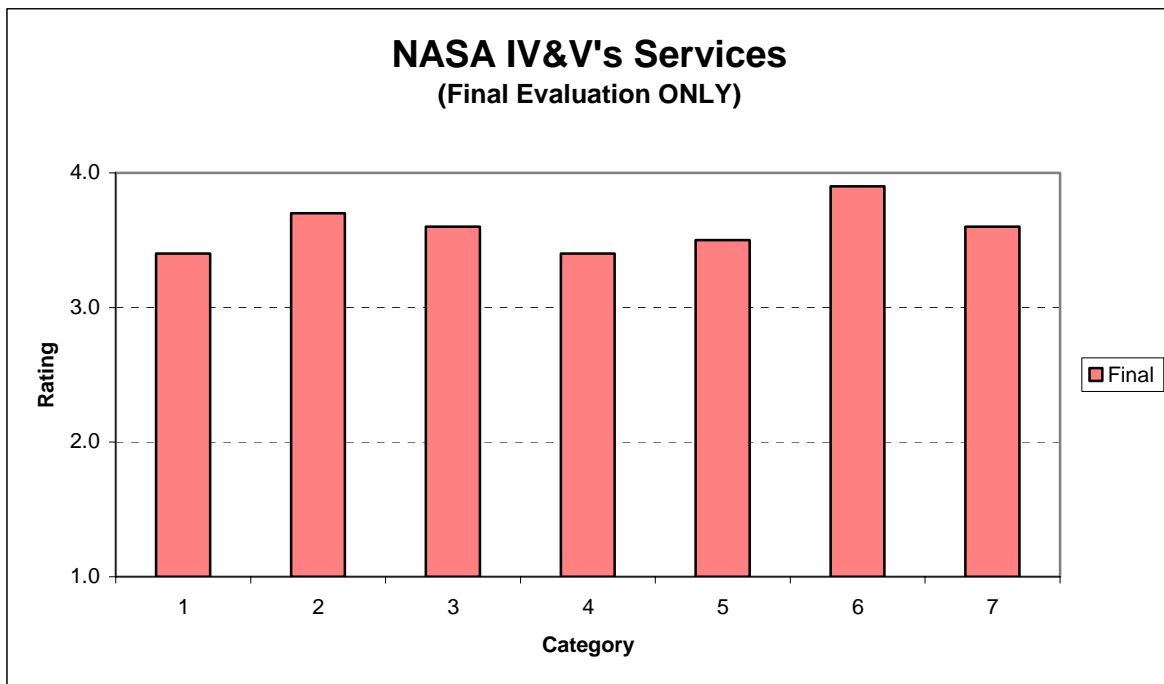
**Graph 2**  
**NASA IV&V Project Manager Evaluations – Project Results**



Category	N Value	
	Progress	Final
1 = PM provided regular, appropriate updates	16	5
2 = PM returned calls/emails within 24 hours	16	5
3 = PM addressed urgency of your needs	14	5
4 = PM completed tasks timely	16	5
5 = PM was aware of status of project	16	5
6 = PM fulfilled commitments satisfactorily	16	5
7 = PM accomplished tasks with creative/innovative approaches	14	4
8 = PM was appropriately matched to your needs	16	5
9 = PM was quick to learn about your project/mission	16	5
10 = PM acted in professional manner	16	5
11 = PM was good listener	16	5
12 = PM demonstrated appropriate skills/experience for project	16	5
13 = PM provided quality work		5

**Rating**  
1 = Never    2 = Seldom    3 = Often    4 = Always

**Graph 3**  
**NASA IV&V's Services - Project Results**



**Category**

- 1 = NASA IV&V met established time schedules
- 2 = Your calls were returned within a reasonable time
- 3 = Written documents were accurate & error free
- 4 = NASA IV&V provided services that consistently met your needs
- 5 = Staff assigned to your project were available when needed
- 6 = NASA IV&V provided routine communication about project
- 7 = You were able to find out status of IV&V work as needed

**N Value**

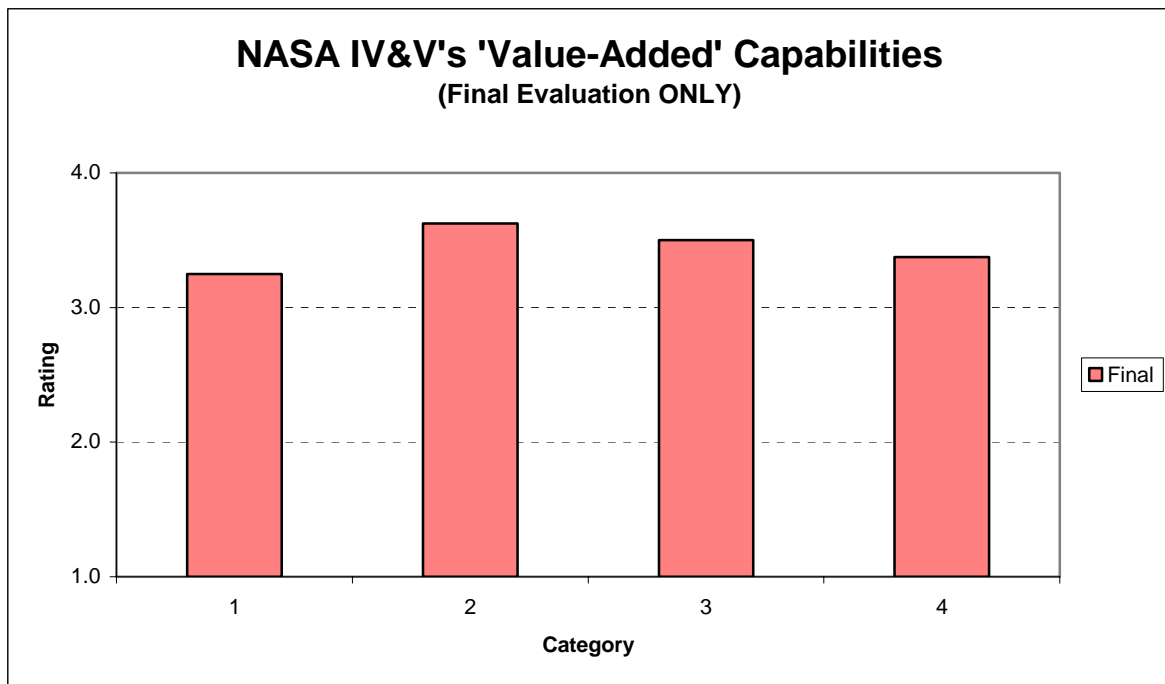
**Final**

5  
5  
5  
5  
5  
5  
5

**Rating**

1 = Never    2 = Seldom    3 = Often    4 = Always

**Graph 4**  
**NASA IV&V's 'Value-Added' Capabilities - Project Results**



**Category**

- 1 = NASA IV&V consistently provided better results than you thought possible
- 2 = NASA IV&V offered a number of personal touches
- 3 = NASA IV&V was on cutting edge in areas important to you
- 4 = NASA IV&V consistently out-performed other organizations you have engaged

**N Value**

**Final**

4  
4  
4  
4

**Rating**

1 = Never    2 = Seldom    3 = Often    4 = Always

### **What is Liked Best**

The following table extracts statements regarding what the respondent stated they liked best regarding NASA IV&V and its work. These are taken from both the progress and the final survey responses. These are not listed in any specific order.

**Table 3**  
**What is Liked Best Regarding NASA IV&V and Its Work**

1. Their genuine concern for the project and effort to help us succeed.
2. They are knowledgeable and easy to work with. When interfacing with the [project] contractor, they are direct and efficient but, at the same time, professional and capable.
3. They were courteous, patient and understanding of the difficulty in getting all the details worked out. Early on, I feared that the typical uncertainty in some areas would be seen as a big deal, but the IV&V team seemed able to patiently wait for the completed picture to emerge.
4. Professionalism, caring, technical expertise.
5. Have expressed an interest in the project and an attitude of "we are here to help" versus pointing out flaws without recommendations.
6. Timely and good quality support
7. They all have incredible work ethic, flexibility, integrity, and enthusiasm for their work.
8. Products have been provided in relatively timely manner.
9. Overall commitment to the project.
10. They are friendly and they listen.
11. Work hard, communicate well, appreciate developer side of project.
12. The individual assigned to [our project] full time is very dedicated to the effort, and works very well with our team. Outputs and deliverables are high quality.
13. The IV&V staff has been very professional in performing their work. It has been easy to maintain a good relationship with them in work that has the potential to be confrontational. They were interested in doing a good and thorough job.
14. They are very thorough in their analysis of the software artifacts.
15. Technically sound and responsive - always.
16. They strive to be value-added, and the PM is diligent about letting me know of his inputs to MSR.
17. Everything was timely, professional, enthusiastic, and the people who did this cared about what they were doing.
18. The ability to tap an unbiased expert in the software development field was a VERY powerful tool. It was evident to all parties that IV&V was giving input solely on its engineering merit and value to the project/products.

19. Dependable and Reliable.
20. The project manager was a reasonable individual who tried to add value to the program.
21. Code Analysis Tools helped find several bugs!
22. Team did find issues/problems that we were glad to be told about and then able to fix.
23. The IV&V team was very efficient in closing the remaining issues once their effort was re-started. I had very little time to get this done in order to meet pre-launch requirements. In addition, I asked that additional analysis be performed on our [program]. The IV&V team quickly planned, executed, and reported on this new work as well.

## **NASA IV&V Recommendations & Work Products**

A question on the progress survey asked about the NASA IV&V recommendations (value and significance) given to the project and the degree to which the respondent felt these allowed the project to mitigate risk. The table below reflects what was extracted from the responses on the progress survey.

**Table 4**  
**Value and Significance of NASA IV&V Recommendations to Projects**

1. IV&V has made an effort to cater their feedback to balance the value of the recommendations against the effort required to comply. They have helped the team understand when risks might be accepted and mitigated rather than completely changing an approach.
2. I have reviewed comments on both spacecraft and instrument software and think the technical basis for their comments is sound. I have confidence that the process improves the software in both systems.
3. This is hard for me to answer not being a Flight Software Engineer on the project. Yet, I believe from statements made by such engineers that the IV&V comments to date have been well formulated. By the fact that IV&V has not found any serious problems gives the project a sense of assurance.
4. As previously stated, the IV&V team has identified issues of significance and value. The project accepted the team's recommendations.
5. The false positives are still relatively high (~60%). In other words, out of every 10 recommendations IV&V gives [our project], 6 are retracted after further explanation. They have found some bugs in code analysis. The biggest value we get is the confidence we are doing a good job.
6. Personnel assigned to the [our project] IV&V have not had a strong background in flight software; some recommendations with regard to general software practices and procedures have proved beneficial.
7. I can only provide a relativistic value in that I do generally trust the NASA IV&V recommendations. Some recommendations are much more valuable than others. Obviously the impact to [our program] increases from insignificant to one that has an impact to the possible loss of the crew or vehicle.
8. IV&V has provided a very complete analysis of developer software. They have made reporting methods and information useful to the development team. Have flagged several potential problems, have contributed valuably to code reviews and walk-throughs--always prepared.
9. We value the analysis and reports that the IV&V perform. We use them as a basis for effecting improvements, and reducing risk. They've also served us well regarding external reviews and audits (GAO, OIG, ...).
10. The analysis done by IV&V Facility personnel has been helpful in improving the quality of the [project] software. The TIMs were concise. Problems with the code were found early so we were able to fix the problems prior to the testing. Inadequacies in the testing procedures were also discovered which helped us improve the procedures.
11. Code analysis efforts and the cross checking does help reduce risk. Although there were not a lot of high severity code issues, any one is helpful to know about.
12. The TIM reports documented the NASA IV&V's findings and recommendations. Some of these findings and recommendations are very helpful, but some of them are too trivial.

13. The IV & V Contractor team, led by [the contractor], has done an outstanding job of focusing their findings on areas where technical risks can be minimized or eliminated and ensuring safety is adequately addressed. [The Contractor] has provided a fresh technical perspective on the software development process.
14. IV&V has gained unique software experience and become foremost technical experts. This fact, along with the NASA problem of a [project] community gravely lacking in software knowledge, has placed IV&V in an invaluable position. I often seek IV&V's insights and advice. Our monthly tag-ups serve as the forum to report issues and its associated risk to the Program; these discussions have helped me to focus / direct the developers work efforts and future Program planning.
15. Most activities occur at a lower level than I typically see. However, I have received positive feedback from one of our instrumenters on their interactions with IV&V, and our own in-house team has provided at least one instance of IV&V catching a problem before they did. Thank you.
16. Frequently, IVV is 'finding' the same issues that the project is already working and addressing. Any 'new' findings are unusual. The re-enforcement of Project's issues is helpful at times.
17. Having the TIMs "ranked" in priority has been a benefit to be able to permit us to focus on those that are most important, and spend less resources on those that are less important.
18. Very few findings have been new issues or of significant value. Most are documentation related contributing little to risk mitigation. Hopefully this will improve as we get into software verification phases.

### **Specific Improvement Suggestions**

On both the progress and final survey instruments used this year, those responding were asked how NASA IV&V could improve its services. One question asked how to directly improve services on the project being surveyed (e.g., on progress - how to better serve going forward, on final - how could we have served better). The other question was focused on improving services in general to all customers. The table below shows highlights from **all** of the specific suggestions offered.

One of the primary reasons for asking customers how to improve is to take actions when recommendations are on target. The appropriate representatives of NASA IV&V are encouraged to undertake a serious review of the suggestions in Table 5. The items listed are not in priority order nor does each one require the same amount of analysis.

In some cases, there is a need to not just take the comment at surface level, but to dig deeper as to why the suggestion would be offered. In some cases, the comment might indicate a misunderstanding or a lack of knowledge of IV&V processes or expectations of an IV&V engagement. Thus, there will need to be education and specific communication to reduce these occurrences. Some comments might be indicative of project management ineffectiveness in some area(s).

Finding positive ways to improve can be a rewarding outcome of the survey process and ensures that those who took time to thoughtfully respond are heard. CESD would recommend that the collective actions for improvement be captured and reported in general to those that responded. This may be done in a separate letter or as part of next year's request for feedback.



**Table 5**  
**Improvement Suggestions from 2005 Customer Surveys**

1. Continue to be sensitive to our aggressive schedule and minimize the impact by providing early warning of potential problems and findings.
2. Continued support.
3. Weed out false positives (problems) better and before presenting to project.
4. [Our project] has been undergoing a schedule replan. Flexibility in support, as previously demonstrated, will need to continue.
5. Move to GSFC.
6. I am still waiting for a practical approach to performing IV&V on COTS software.
7. Keep checking for potential problems. Test our software on their simulator.
8. Continue to assess ways to reduce costs.
9. Stop at the software verification effort. Work to resolve issues and lower or close risk items. Complete the reports.
10. Organize the TIM reports in a more concise manner to help reduce the turn-around time (including report reading and response time).
11. Help reprioritize. [Our project] software is amidst a significant downsizing, and it is now critical to identify risky/problematic development areas and focus/direct the contractor's limited resources.
12. I have often wished that the IV&V folks had a little more flexibility or creativeness in defining their role in a Project. It seems to me that they sometimes spend effort on what are obviously little value activities by their own admission (as confirmed by the Critical Functions List). It would seem to me that prudent Risk Management would perhaps even have NO effort expended on items that are classified as low criticality (not likely, little impact).
13. Continue with previously agreed upon tasks. Work closely with the project personnel with focus on only value added activities (i.e., activities that will contribute to mission success).
14. It would be useful to have had some example exchanges when we were proposing and thus had a better idea of how to plan our efforts.
15. I would recommend on all projects that the project's liaison and the IV&V project manager meet early on as [we] did.
16. Maintain a positive, value added team approach.
17. My only comment is that the lack of co-location is sometimes difficult to deal with. It would work better for me to actually see these guys on a day to day basis to better keep them informed of project goings on.
18. IV&V in its initial phases of a project tends to be at best, confrontational simply because the projects don't believe they need the service offered. Train your personnel in conflict management and how to negotiate to a win-win situation if you don't do so today.
19. Start out running. Feedback that is late can delay project and put extra burden on developers.

20. Have the organization be part of the decision making process for the CARA. We experienced a growth in review levels then went through 3 IV&V people assigned to that task (having to train each one on our process) and then the CARA reduced the level back to its original level. Plan accordingly. Programs will slip, artifacts will not be available, there is a period of time where no material will be available (e.g. design phase). Access how we are doing in accordance to our process not someone else's or the 'standard'. Be specific on what is missing and don't make broad statements like 'it's inadequate'. It would be nice to understand what tools are used by IV&V and why.
21. Not just limit to the reviews and analyses of the software artifacts, if possible also try to be involved in the actual software development and testing activities if agreed by the project.
22. Focus activities on value added tasks that contribute to mission success. Get involved early in the life cycle. Perform verification and validation of the software (not simply critique implementation and documentation).
23. They could have reviewed every line of code line by line with full domain knowledge.
24. I think [our project] could have been better served with more on site support by IV&V, not only at [our location] but at the software developers site.
25. Having more of an on-site presence.
26. NASA IV&V should increase the filter on issues and only raise items that are true errors.
27. Been more cooperative during original task negotiation.
28. Understand that most people do not understand software terminology and that some degree of explanation must accompany any IV&V written products.
29. NASA IV&V should incorporate more automated tools in their analysis work.
30. Have folks located local to the project. Or if not, allow them to do frequent on-site visits.
31. A continuation of the service and support by the same team that has existed for the past 1.5 years would be a welcome extension.
32. Through [our project] we've made a number of suggestions/recommendations. The two most significant: 1) More and more, automated code tools are being used – both for GNC algorithms and for C&DH (via UML). It would be beneficial for IVV to do their analysis/evaluation at source level – the model, rather than at the C/C++ code level. #2) Re-use is prevalent (and growing) in the industry. If IVV could identify leverage re-use in the IVV domain, there could be a cost savings without the loss of integrity or independence in the effort.
33. I would like to see additional capability/expertise regarding analysis of file systems like that used on [the project] with the software and non-volatile memory.
34. Although personalities and approach to the task at hand cause differences in output, as a whole, the [project] team has been good to work with and thorough. If it is at all possible, try to be consistent. This is a problem across programs. We apply the same process across missions, yet the IV&V teams bring up vastly different issues and risks.

## **CESD Recommendations**

The following are offered by CESD for consideration by NASA IV&V regarding use of the survey results and future work with customer surveys.

- Understanding customer requirements takes “listening” to the customer and trying to understand what will make him or her most satisfied with the NASA IV&V services. This goes beyond asking, “Are you satisfied with a specific aspect of the work?”. The data provided by those who did respond offers a lot to consider. As mentioned this may be in advocating changes in current policies and practices. Or, it can mean a concentrated effort to communicate the right level of expectations or knowledge regarding the IV&V work and associated services. There should be ample, detailed discussion of the results, by at least a small cross-functional team (allows for truer interpretation of feedback) to ascertain what if any changes should be in place.
- At some point, a formal follow up from the NASA IV&V Director should be made to those who took time to respond. In addition to thanking them for the feedback, the letter should outline some of the findings and discuss actions being taken based on some of the comments. This can be in general and not targeted to a specific project. What is vital is passing on the message that feedback was heard, suggestions taken seriously, and some actions or changes put in place.
- Communication of the process and findings to the NASA IV&V staff, as well as the project contractors should be done. Again, this is an opportunity to emphasize the importance of the process itself and feedback on the positives found. This also is the time to delineate actions that will be put in place based on the outcomes or to emphasize the need to continue what is working well and change areas less desired by customers.
- Within a **confidential** framework, there needs to be attention to those areas where concerns were shared, either with the project in general or with a particular project manager. The concept is to improve the NASA IV&V services wherever improvement opportunities are presented. In some cases this can be sensitive and require management to “work the issue” in the most appropriate manner. Certainly, differentiating between personality conflicts with project managers and projects and a skill(s) deficiency will be paramount. CESD urges, as stated elsewhere, that the utmost care be taken not to breach the confidentiality of those who responded when working in this area. Misplaced feedback to a survey completed can destroy the trust of the survey process.
- Review the survey instruments used this year against the results garnered. There may be need to rework some or all areas of the surveys. Important will be to keep some questions to have trend data in future years, thus a need to keep some of the requested information close to the same.
- As to the survey process, there should be a review of the activities, cover letters, follow up, etc. Adjustments, as warranted, to the process can be put in place to increase the effectiveness of getting good feedback from the broadest number of those knowledgeable to give value input.
- Consideration should be given to one-on-one interviews with selected customers based on the findings. That is, where there is an improvement area identified or a topic discussed in response (maybe more than once), NASA IV&V leadership may find value in meeting with project staff to discuss in more detail the issue. The primary purpose is to reach a deeper understanding of the topic or issue so appropriate improvements can be made. In some cases, discussion can center on what is working well to seek more information on how to institutionalize the “best practice.”

- The customer survey process this year centered on sending out progress and final surveys based on a list gathered through project managers in early summer. Thus, a single mailing list was compiled, and the entire survey process (as found in this report) occurred simultaneously. The original customer focus plan, which outlined NASA IV&V's commitment, approach and process strategies for attention to "listening" to the customer, outlined specific guidelines for survey timeframes.

In the original customer focus plan, there was consideration for completing final surveys closer to the time the project was finished. Further, based on the timing of start of the projects, progress reports may be more meaningful at different times of the year. The key point is that a systematic, on-going survey process was to be integrated into the practices of the organization as delineated in the customer focus plan.

Since the original customer focus plan was developed over three years ago, it seems most appropriate to re-visit the documentation and make updates. These updates would reflect changes that have evolved over time with the survey process. In addition, it is recommended to look at what procedures would be best to implement going forward. The results of this work should become the Facility's primary "standards manual" for the overall customer focus work.

## APPENDIX A

### NASA IV&V PROJECT – PROGRESS EVALUATION CUSTOMER SURVEY 2005

NASA IV&V desires to ensure all project products and services always meet the customer's requirements and expectations. To do this, we need your open and honest feedback regarding progress on your current project with NASA IV&V. This is an opportunity for us to ask important questions that will help us assess how we are doing and what areas we may need to change. You may complete this survey and return it by mail, fax it to 304.293.6707, or complete it directly on line at the following address: [www.cesdonline.org/surveys/NASA](http://www.cesdonline.org/surveys/NASA). Thank you.

#### Project Data

Project \_\_\_\_\_

Person completing survey (optional) \_\_\_\_\_

Your position for this project ☐ Project Manager ☐ IV&V Liaison (primary point of contact for project)

#### About NASA IV&V's Performance to Date

Please evaluate each of the following statements by circling the number that best describes your impressions. Circle N/A for those that don't apply to your organization or the particular project effort being evaluated.

		Strongly Disagree	Disagree	Agree	Strongly Agree	N/A
1.	NASA IV&V understands your requirements and is responding to your needs.	1	2	3	4	0
2.	NASA IV&V is adhering to the IV&V plan as delineated in the MOA or other formal agreement.	1	2	3	4	0
3.	NASA IV&V is giving your project the priority (timeliness and depth) you feel is needed.	1	2	3	4	0
4.	NASA IV&V is always well prepared when working with you or your organization on the project.	1	2	3	4	0
5.	You have confidence in the advice or recommendations being given to your organization by NASA IV&V.	1	2	3	4	0
6.	Your staff is presently comfortable with the NASA IV&V project contact person and staff with whom they interact.	1	2	3	4	0
7.	You are being kept adequately informed of the IV&V progress on this project.	1	2	3	4	0
8.	You understand what activities NASA IV&V is performing on your project.	1	2	3	4	0
9.	NASA IV&V completes tasks identified in the IV&V plan within timeframes that meet your requirements.	1	2	3	4	0
10.	You are completely satisfied to date with NASA IV&V's technical performance as to accuracy, quality and related work products for this project.	1	2	3	4	0

Please provide comments or specific observations to the questions above, especially where you circled '1' or '2' responses.

### About the NASA IV&V Project Manager Assigned to this Project

Please evaluate each of the following statements about the project manager working with your organization. Circle N/A for those that don't apply.

		<i>Never</i>	<i>Seldom</i>	<i>Often</i>	<i>Always</i>	<i>N/A</i>
1.	The project manager provides you with regular, appropriate updates on project status.	1	2	3	4	0
2.	The project manager returns phone calls or emails to you within 24 hours.	1	2	3	4	0
3.	The project manager addresses the <i>urgency</i> of your needs or specific requests for assistance.	1	2	3	4	0
4.	The project manager is aware of the status of your project and appropriately tailors the IV&V tasks to any changes that may occur.	1	2	3	4	0
5.	The project manager completes tasks identified in the plan within timeframes that meet your requirements.	1	2	3	4	0
6.	The project manager is fulfilling his or her commitments to your organization's satisfaction.	1	2	3	4	0
7.	The project manager accomplishes tasks with creative and innovative approaches.	1	2	3	4	0
8.	The project manager is appropriately matched to your needs.	1	2	3	4	0
9.	The project manager has been quick to learn about your project/mission.	1	2	3	4	0
10.	The project manager acts in a professional manner.	1	2	3	4	0
11.	The project manager listens and is a good communicator.	1	2	3	4	0
12.	The project manager demonstrates the appropriate skills and experience required for this project.	1	2	3	4	0

Please provide a general evaluation of this project manager concerning achievement of goals as stated in the project IV&V plan.

What specific comments would you share regarding this project manager's skills, quality of work, or performance during the time he or she worked on the project with your organization?

### ***About Our Recommendations and Work Products to Date***

Please provide your feedback related to NASA IV&V recommendations (value and significance) given on this project and the degree to which you feel these recommendations have allowed the project to mitigate risk.

### ***About Your General Opinions of NASA IV&V's Work to Date***

What have you liked best about the NASA IV&V staff assigned to the project and their work?

How can the NASA IV&V Facility better serve you or your organization during the remainder of this project?

What other comments would you offer regarding our performance to date on your project or that will help us better serve our IV&V customers such as you in the future?

## NASA IV&V PROJECT - FINAL EVALUATION CUSTOMER SURVEY 2005

NASA IV&V strives to provide services that are timely, effective, and meet your requirements and expectations. In fact, our goal is to exceed your expectations. To do this, we need your feedback about your project. You may complete this survey and return it by mail, fax it to 304.293.6707, or complete it directly on line at the following address: [www.cesdonline.org/surveys/NASA](http://www.cesdonline.org/surveys/NASA). Thank you.

Project \_\_\_\_\_

Person completing evaluation (optional) \_\_\_\_\_

Your position for this project ☐ Project Manager ☐ IV&V Liaison (primary point of contact for project)

### About NASA IV&V's Overall Performance

Please evaluate each of the following statements by circling the number that best describes your impressions. Circle N/A for those that don't apply to your organization or project.

		Strongly Disagree	Disagree	Agree	Strongly Agree	N/A
1.	NASA IV&V comprehended your project requirements and was able to respond to your needs as reflected in the project outcomes.	1	2	3	4	0
2.	NASA IV&V adhered to the signed agreements (e.g., MOA or IVVP).	1	2	3	4	0
3.	NASA IV&V always gave a high priority to this project.	1	2	3	4	0
4.	NASA IV&V was always well prepared when working with you on the project.	1	2	3	4	0
5.	NASA IV&V was highly ethical and open while working with your organization.	1	2	3	4	0
6.	NASA IV&V was very <i>efficient</i> in the way it completed the project.	1	2	3	4	0
7.	You have confidence in the advice or recommendations given to your organization by NASA IV&V.	1	2	3	4	0
8.	Your staff was comfortable with the NASA IV&V project contact person and staff with whom they interacted.	1	2	3	4	0
9.	NASA IV&V always met project deliverables and milestones as planned.	1	2	3	4	0
10.	You are completely satisfied with NASA IV&V's technical performance as to accuracy, quality and related work products for this project.	1	2	3	4	0
11.	The IV&V services/project added value to your overall program/mission.	1	2	3	4	0
12.	You had a contact at NASA IV&V whom you could always turn to about IV&V issues or the project in general.	1	2	3	4	0

Please provide comments or observations on any of the questions above, especially where your ratings were '1' or '2'.



## About Our Services

Circle the number that best reflects the extent of your agreement with each statement related to this project. Circle N/A for those that don't apply.

	<i>Never</i>	<i>Seldom</i>	<i>Often</i>	<i>Always</i>	<i>N/A</i>
1. NASA IV&V met the established time schedules.	1	2	3	4	0
2. Your calls were returned within a reasonable time.	1	2	3	4	0
3. Written documents were accurate and error free.	1	2	3	4	0
4. NASA IV&V provided services that consistently met your needs.	1	2	3	4	0
5. Staff assigned to your project were available when needed.	1	2	3	4	0
6. NASA IV&V provided routine communication about the project.	1	2	3	4	0
7. You were able to find out the status of our IV&V work or project at any time you needed to know.	1	2	3	4	0

Please provide comments or observations on any of the questions above, especially where your ratings were '1' or '2'.

## About Our 'Value-Added' Capabilities

Circle the number that best reflects your agreement with each statement regarding the 'value-added' capabilities of NASA IV&V. Circle N/A for those that don't apply.

	<i>Never</i>	<i>Seldom</i>	<i>Often</i>	<i>Always</i>	<i>N/A</i>
1. NASA IV&V consistently provided you with better results than you thought were possible.	1	2	3	4	0
2. NASA IV&V offered a number of personal touches that were especially appreciated by you and others at your organization.	1	2	3	4	0
3. NASA IV&V was on the cutting edge in areas that are important to you.	1	2	3	4	0
4. NASA IV&V consistently out-performed other organizations that you have engaged for technical assistance.	1	2	3	4	0

### About the NASA IV&V Project Manager Assigned to this Project

Please evaluate each of the following statements about the NASA IV&V project manager who worked with your organization on this project. Circle N/A for those that don't apply.

		<i>Never</i>	<i>Seldom</i>	<i>Often</i>	<i>Always</i>	<i>N/A</i>
1.	The project manager provided you with regular, appropriate updates on project status.	1	2	3	4	0
2.	The project manager returned phone calls or emails to you within 24 hours.	1	2	3	4	0
3.	The project manager addressed the <i>urgency</i> of your needs or specific requests for assistance.	1	2	3	4	0
4.	The project manager completed tasks identified in the proposal within timeframes that met your requirements.	1	2	3	4	0
5.	The project manager provided quality work products, service, and/or assistance on this project.	1	2	3	4	0
6.	The project manager was aware of the status of your project and appropriately tailored the IV&V tasks to changes that occurred.	1	2	3	4	0
7.	The project manager fulfilled his or her commitments to your organization's total satisfaction.	1	2	3	4	0
8.	The project manager accomplished tasks with creative and innovation approaches.	1	2	3	4	0
9.	The project manager was appropriately matched to your needs.	1	2	3	4	0
10.	The project manager was quick to learn about your project/mission.	1	2	3	4	0
11.	The project manager acted in a professional manner.	1	2	3	4	0
12.	The project manager was a good listener.	1	2	3	4	0
13.	The project manager demonstrated the appropriate skills and experience required for this project.	1	2	3	4	0

Please provide a general evaluation of this project manager concerning achievement of goals as stated in the project proposal.

What specific comments would you share regarding this project manager's skills, quality of work, or performance during the time he or she worked on the project with your organization?

***About Your General Opinions of NASA IV&V's Work and Capabilities***

How could NASA IV&V have better served you during this specific project?

What do you like best about working with NASA IV&V or the IV&V work done for you?

In what general areas could NASA IV&V improve related to its IV&V services/products?

# **APPENDIX B**

## **NASA IV&V Customer Survey Process 2005 Distribution List**

**June-September 2005**

- 1. AFD**
- 2. AIM**
- 3. BUMPER II**
- 4. CREAM/ULDB**
- 5. DART**
- 6. DAWN**
- 7. Deep Impact**
- 8. FCF**
- 9. GLAST**
- 10. IFMP**
- 11. ISS**
- 12. JWST**
- 13. Kepler**
- 14. MER**
- 15. Messenger**
- 16. MRO**
- 17. NPP**
- 18. PCG2**
- 19. PKB**
- 20. SDO**
- 21. Shuttle**
- 22. STEREO**
- 23. THEMIS**